--Insulin like growth factor-1 (IGF-1), a 70-amino acid peptide structurally related to insulin, is normally considered to be a metabolic hormone which mediates many effects of growth hormone. Prophylactic insulin treatment of NOD mice during the prediabetic phase (5) as well as insulin treatment of the NOD recipients of autoreactive T cells during adult T cell transfer (6) have been shown to prevent and/or delay the onset of diabetes and to reduce the severity of insulitis. Similar results have been also obtained in BB rats (7,8), which are another animal model of spontaneous autoimmune diabetes. Since insulin is a major antigenic component of the beta cells, it was not clear from these experiments whether insulin protective effects were explained by an antigen-specific unresponsiveness of the immune system, by a direct suppressive effect on T cell function, or by a direct effect on the beta cells.--

Please rewrite the paragraph bridging pages 2 and 3 to read as follows:

--IGF-I has also shown to have a protective effect against diabetes, in preventing beta cell destruction in subjects which are at high risk of development of diabetes and in the regulation of T cells in subjects which are at high risk of developing diabetes.--

Please rewrite the paragraphs referencing the Figures and appearing at page 3, lines 10-20 to read as follows:

-- The following figures are illustrating the results of the experiments.

Figure 1 Cumulative incidence of diabetes in four independent experiments in mice;

Figure 2 Severity of insulitis and destructive lesions;

Figures 3a-3c FACS analysis of Thy-1,2$^+$ T cells within the spleen of a congenic NOD-N Thy-1,1 mouse;

Figures 4a-4c FACS analysis of Thy-1,2$^+$ T cells within the thymus of a congenic

A 4 (CONCLUD.

NOD-N Thy-1,1 mouse.--

Please rewrite the paragraph appearing at page 7, lines 5-16 to read as follows:

--Because insulitis is a T cell phenomenon, we suspected that rhlGF-1 might interfere with the kinetics of the migration of committed T cells to the pancreas. Congenic NOD-N Thy-1,1 males were adoptively transferred with T cells from diabetic NOD Thy-1,2 animals. Diabetes occurred in 3 / 6 mice that had been treated with saline and 0 / 6 mice that had been treated with rhlGF-1, after 3 weeks of treatment. This apparent protective effect was also associated with a decrease in the severity of islet cell infiltrates, which were composed exclusively by T cells from donor origin with no recruitment of host T cells. More particularly, immunodetection of Thy-1,2$^+$ T cells in the islets of congenic NOD-N Thy-1,1 mice three weeks after adoptive cell transfer of diabetes using $7x10^6$ T cells from NOD Thy-1,2 diabetic donors illustrates a severe insulitis in a control mouse while illustrating a peri-insulitis in a mouse treated with rhlGF-1. Additionally, when analyzed in individual mice, the number of Thy-1,2$^+$ T cells was found to be significantly lower in the spleen of treated mice with rhlGF-1 in comparison with control mice (Table III and Figures 3a, 3b and 3c), although no significant difference was noted within the thymus (Figures 4a, 4b and 4c).--

A 5

Please rewrite the paragraph appearing at page 8, lines 12-32 to read as follows:

--The observation of pancreatic glands free from insulitis under rhlGF-1 treatment, suggests another mechanism that occurs prior to the late activation process of infiltrating T cells by eliminating or inactivating the functional properties of autoreactive T cells necessary for beta cell destruction. Recombinant hlGF-1 may exert these effects directly on lymphoid cells, since in vitro suppression of T cell response to concanavalin A or allogeneic stimulation can be achieved in a dose dependent manner (16). Many actions of growth-

A 6

hormone on the immune system may be mediated by IGF-1 which is also produced by peripheral leukocytes (17). Recent observations suggest that activated T lymphocytes possess receptors for IGF-1 (18-20). In addition, several reports indicate that IGF-1 may influence thymic epithelial cell function in vitro (21) and induce thymocyte replication and differentiation in streptozocin induced diabetic rats (22). Mice which receive 4 mg/kg per day of rhlGF-1 were found to have an increased spleen and thymus weight, due to an increase in the number of lymphocytes in these organs, preferentially T cells from the CD4 phenotype (22). We did not observe any difference in the number of T cells in the lymphoid organs and in the relative contribution of T cell subsets within the spleen, probably because of lower doses of rhlGF-1 used in the present study. Moreover, treatment of diabetic females with rhlGF-1 failed to reduce the capacity of spleen cells to transfer the disease, suggesting that the number and degree of activation of autoreactive T cells were not modified.--

Please rewrite the paragraphs referencing the LEGENDS OF FIGURES and appearing at page 9, lines 12-37 to read as follows:

--LEGENDS OF FIGURES

Figure 1: Cumulative incidence of diabetes in four independent experiments following adoptive T cell transfer in 24 mice injected twice daily with 10μ rhlGF-1 (open circles) and 21 control mice injected with saline (closed circles).

Figure 2: Severity of insulitis and destructive lesions of recipient mice according to treatment with saline (dark columns) or rhlGF-1 (open columns). Results are mean percentages ± SE from 24 individual mice from two independent experiments.

Figures 3a, 3b and 3c: FACS analysis of Thy-1,2$^+$ T cells within the spleen of a congenic NOD-N Thy-1,1 mouse, three weeks after sub-lethal irradiation and inoculation of Thy-1,2$^+$ T cells from diabetic donors. Figure 3a represents the results

in a control NOD-N Thy-1,1 mouse. Insulin like growth factor-1 significantly reduced the number of Thy-1,2$^+$ in the spleen (Figure 3b) in comparison to saline (Figure 3c).

A7 cancel

Figures 4a, 4b and 4c: FACS analysis of Thy-1,2$^+$ T cells within the thymus of a congenic NOD-N Thy-1,1 mouse, three weeks after sub-lethal irradiation and inoculation of Thy-1,2$^+$ T cells from diabetic donors. Figure 4a represents the results in a control NOD-N Thy-1,1 mouse. The effects of rhIGF-1 upon the reconstitution of the thymus after T cell transfer are shown in Figure 4b and are compared to saline injected mouse (Figure 4c).--

In the Claims:

Please cancel claims 1-6 and 8

Please amend claims 7, 9 and 10 to read as follows:

A8

7. (Amended) Method for delaying the clinical onset of diabetes by administration of an IGF-I analogue.

A9

9. (Amended) Method for reducing the occurrence of beta cell destruction in a subject having a high risk of developing diabetes by administration of an IGF-I analogue.

A9

10. (Amended) Method for reducing the number of T cells migrating to the spleen in a subject having a high risk of developing diabetes by administration of an IGF-I analogue.

Please add the following claims 11-27:

A10

--11. (NEW) A method according to claim 7, wherein the IGF-I analogue is administered in a daily dosage of from 20 to 500 μg/kg.--

--12. (NEW) A method according to claim 9, wherein the IGF-I analogue is administered in a daily dosage of from 20 to 500 μg/kg.--

--13. (NEW) A method according to claim 10, wherein the IGF-I analogue is administered in a daily dosage of from 20 to 500 μg/kg.--

--14. (NEW) A method according to claim 7, wherein the IGF-I analogue is administered in a daily dosage of from 20 to 250 μg/kg.--

--15. (NEW) A method according to claim 9, wherein the IGF-I analogue is administered in a daily dosage of from 20 to 250 μg/kg.--

--16. (NEW) A method according to claim 10, wherein the IGF-I analogue is administered in a daily dosage of from 20 to 250 μg/kg.--

--17. (NEW) A method according to claim 7, wherein the IGF-I analogue is administered in a daily dosage of from 100 to 200 μg/kg.--

--18. (NEW) A method according to claim 9, wherein the IGF-I analogue is administered in a daily dosage of from 100 to 200 μg/kg.--

--19. (NEW) A method according to claim 10, wherein the IGF-I analogue is administered in a daily dosage of from 100 to 200 μg/kg.--

--20. (NEW) A method according to claim 7, wherein the IGF-I analogue has a sequence identity of at least 90% to IGF-I.--

--21. (NEW) A method according to claim 9, wherein the IGF-I analogue has a sequence identity of at least 90% to IGF-I.--

--22. (NEW) A method according to claim 10, wherein the IGF-I analogue has a sequence identity of at least 90% to IGF-I.--

--23. (NEW) A method according to claim 7, wherein the IGF-I analogue has a sequence identity of at least 95% to IGF-I.--

--24. (NEW) A method according to claim 9, wherein the IGF-I analogue has a sequence identity of at least 95% to IGF-I.--

--25. (NEW) A method according to claim 10, wherein the IGF-I analogue has a sequence identity of at least 95% to IGF-I.--

--26. (NEW) A method according to claim 7, wherein the IGF-I analogue has a sequence identity of at least 99% to IGF-I.--

--27. (NEW) A method according to claim 9, wherein the IGF-I analogue has a sequence identity of at least 99% to IGF-I.--